Supplementary Material

Pregnancy duration and ovarian cancer risk: a 50-year nationwide cohort study

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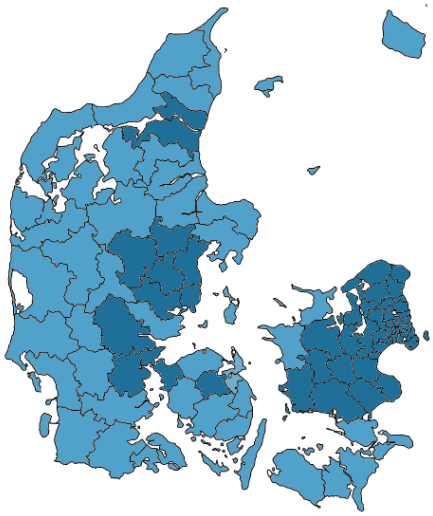
Appendix Table 1. Coding of study variables.

Hospital diagnoses	**ICD-8 (1977-1994)**	**ICD-10 (1995-)**
Endometriosis	'625.30', '625.31', '625.32', '625.33', '625.34', '625.35', '625.36', '625.37', '625.38', '625.39'	'N80', 'N80.0', 'N80.1', 'N80.2', 'N80.3', 'N80.4', 'N80.5', 'N80.6', 'N80.8', 'N80.9'
Spontaneous abortion	'64380', '64381', '64382', '64389', '64390', '64391', '64392', '64399'	'O03', 'O03.0', 'O03.1', 'O03.2', 'O03.3', 'O03.4', 'O03.5', 'O03.6', 'O03.7', 'O03.8', 'O03.9'
Clinical infertility	'62800', '62801', '62808', '62809', '62810', '62811', '62818', '62819', '62820', '62821', '62828', '62829', '62830', '62831', '62838', '62839', '62840', '62841', '62848', '62849', '62850', '62851', '62858', '62859', '62860', '62861', '62868', '62869', '62880', '62881', '62888', '62889', '62890', '62891', '62898', '62899'	'DN97', 'DN970', 'DN971', 'DN972', 'DN973', 'DN974', 'DN978', 'DN979'
Surgical procedures	**Danish Classification of Surgical Procedures and Therapies (1977-1995)**	**Nordic Medico-Statistical Committee Classification of Surgical Procedures (1996-)**
Hysterectomy	'61000', '61020', '61040', '61050', '61100', '72110', '72230', '72240', '72600', '72650'	'KMCA33', 'KLCD00', 'KLCD01', 'KLCD04', 'KLCD10', 'KLCD11', 'KLCD30', 'KLCD31', 'KLCD40', 'KLCD96', 'KLCD97', 'KLEF13'
Unilateral or bilateral oophorectomy	'60100', '60101', '60300', '60120', '60121', '60320', '70200', '70201', '70300', '70310',	'KLAE10', 'KLAE10A', 'KLAE11', 'KLAF00', 'KLAF00A', 'KLAF01', 'KLAE20', 'KLAE20A', 'KLAE21', 'KLAF10', 'KLAF10A', 'KLAF11'
Tubal ligation	'60800', '60810', '60820', '60830', '0840', '60420', '60380', '60381', '60361', '60360'	'KLGA00', 'KLGA10', 'KLGA11', 'KLGA20', 'KLGA21', 'KLGA22', 'KLBD00', 'KLBD01', 'KLBE00', 'KLBE00A', 'KLBE01',
Pharmaceutical use	**ATC-codes (1995-)**	
Oral contraceptives	'G03AA01', 'G03AA03', 'G03AA05', 'G03AA07', 'G03AA09', 'G03AA10', 'G03AA11', 'G03AA12', 'G03AB03', 'G03AB04', 'G03AB06', 'G03HB01', 'G03AB08', 'G02A16', 'G03AA14', 'G03AC01', "G03AC02", "G03AC03", "G03AC09"	
Hormone replacement therapy	'G03CA03', 'G03CA04', 'G03CA53', 'G03CA57', 'G03FB01', 'G03FB05', 'G03FB06', 'G03FB09', 'G03HB01', 'G03FA01', 'G03FA12', 'G03DC05', 'C03XC01', 'G03CB01'	

(cont.)

Socioeconomic variables	Statistics Denmark registries
Educational attainment	Primary schooling: Primary schooling or missing information on educational attainment. Short basic education: High school with technical or mercantile focus; short basic education. Higher education: High school; higher education of short duration; higher education of medium duration; academic bachelor degree; academic master's degree; higher education of long duration
Urbanicity	Urbanicity categorized according to definition used by The Danish Ministry for Economic Affairs and the Interior (described in '*National strategi for Det danske landdistrikts-program 2007-2013*'). Prior to the municipality reform of 2007 the following municipality codes were categorized as urban: Municipality codes between 100 and 271, in addition to 315, 321, 339, 341, 345, 313, 351, 385, 329, 311, 325, 331, 333, 271, 389, 303, 335, 337, 307, 353, 357, 373, 393, 429, 445, 451, 461, 607, 601, 609, 615, 509, 621, 629, 623, 603, 605, 611, 617, 631, 709, 711, 713, 767, 727, 705, 743, 749, 771, 703, 715, 737, 745, 751, 817, 831, 837 and 851. Following the municipality reform in 2007 the following municipality codes were categorized as urban: Municipality codes between 100 and 271, in addition to 316, 320, 329, 330, 336, 340, 370, 410, 461, 607, 615, 621, 630, 710, 727, 740, 746, 751 and 851. The remaining municipalities were categorized as rural. Geographic distribution of urbanicity in Denmark:  *Urban municipalities shown in **dark blue** and rural municipalities shown in **light blue**.*
Marital status	Married: married or in civil union. Divorced: divorced or prior civil union. Widowed: widowed or longest living partner from civil union. Unmarried: no marital status assigned.

Appendix Table 2. Ovarian cancer risk by number of childbirths, with no childbirths and previous childbirths as reference, respectively from 1968 to 2018.

	Adjusted relative risk (95% CI) with nulliparous as reference[1]	Adjusted relative risk (95% CI) with previous childbirth as reference[1,2]
Nulliparous	1 (ref.)	-
1st	0.77 (0.71-0.85)	0.77 (0.71-0.85)
2nd	0.58 (0.54-0.63)	0.75 (0.71-0.80)
3rd	0.51 (0.47-0.56)	0.88 (0.82-0.94)
4th or more	0.48 (0.42-0.54)	0.93 (0.84-1.04)

[1] Adjusted for age, calendar period, tubal ligation, endometriosis, marital status, educational attainment, urbanicity, and interaction between calendar period and age, educational attainment, marital status, and urbanicity.

[2] P<0.01 for heterogeneity.

Appendix Table 3. Ovarian cancer risk by gestational duration of induced abortions and childbirths from the first to fourth pregnancy, compared with one pregnancy less.

	Adjusted relative risk (95% CI)[1]	Test for difference by pregnancy number and type	Test for difference by pregnancy number
First pregnancy			
Induced abortion ≤ 7 weeks	0.85 (0.71-1.02)		
Induced abortion 8-11 weeks	0.96 (0.83-1.12)	P=0.53	
Induced abortion ≥ 12 weeks	0.63 (0.31-1.27)		
Childbirth ≤ 31 weeks	0.73 (0.40-1.32)		P=0.02
Childbirth 32-36 weeks	0.58 (0.43-0.78)	P=0.92	
Childbirth 37-40 weeks	0.66 (0.59-0.74)		
Childbirth ≥ 41 weeks	0.66 (0.57-0.76)		
Second pregnancy			
Induced abortion ≤ 7 weeks	0.79 (0.65-0.96)		
Induced abortion 8-11 weeks	0.80 (0.68-0.95)	P=0.87	
Induced abortion ≥ 12 weeks	1.01 (0.56-1.83)		
Childbirth ≤ 31 weeks	0.78 (0.41-1.51)		P=0.77
Childbirth 32-36 weeks	0.84 (0.63-1.10)	P=0.77	
Childbirth 37-40 weeks	0.69 (0.63-0.76)		
Childbirth ≥ 41 weeks	0.73 (0.64-0.83)		
Third pregnancy			
Induced abortion ≤ 7 weeks	1.01 (0.89-1.15)		
Induced abortion 8-11 weeks	0.93 (0.82-1.05)	P=0.64	
Induced abortion ≥ 12 weeks	1.24 (0.71-2.13)		
Childbirth ≤ 31 weeks	0.73 (0.27-1.96)		P=0.18
Childbirth 32-36 weeks	0.91 (0.62-1.35)	P=0.92	
Childbirth 37-40 weeks	0.76 (0.68-0.86)		
Childbirth ≥ 41 weeks	0.74 (0.62-0.88)		
Fourth pregnancy			
Induced abortion ≤ 7 weeks	0.94 (0.79-1.13)		
Induced abortion 8-11 weeks	1.07 (0.92-1.24)	P=0.48	
Induced abortion ≥ 12 weeks	0.52 (0.17-1.61)		
Childbirth ≤ 31 weeks	0.43 (0.06-3.07)		P=0.10
Childbirth 32-36 weeks	1.11 (0.63-1.96)	P=0.19	
Childbirth 37-40 weeks	0.89 (0.75-1.06)		
Childbirth ≥ 41 weeks	1.36 (1.07-1.72)		

[1] Adjusted for age, calendar period, tubal ligation, endometriosis, marital status, educational attainment, urbanicity, and interaction between calendar period and age, educational attainment, marital status, and urbanicity.

Appendix Table 4. Ovarian cancer risk by time span between the first and last pregnancy among women with two, three, or four pregnancies, where the first pregnancy was before 25 years of age.

	Adjusted relative risk (95% CI)[1]		
Time between pregnancies	Among women with two pregnancies	Among women with three pregnancies	Among women with four pregnancies
0-4 years	0.97 (0.87-1.08)	1.02 (0.72-1.44)	0.49 (0.16-1.53)
5-9 years	1 (ref.)	1 (ref.)	1 (ref.)
10-14 years	1.13 (0.97-1.32)	1.01 (0.88-1.15)	1.01 (0.83-1.22)
15-19 years	0.77 (0.54-1.09)	1.02 (0.86-1.21)	0.95 (0.77-1.18)
20 years or more	0.90 (0.53-1.52)	1.09 (0.86-1.39)	0.92 (0.71-1.20)
Test for trend	P=0.67	P=0.57	P=0.62

[1] Adjusted for age, calendar period, tubal ligation, endometriosis, marital status, educational attainment, urbanicity, and interaction between calendar period and age, educational attainment, marital status, and urbanicity.

Appendix Table 5. Ovarian cancer risk by three additional months of pregnancy stratified by pregnancy number, pregnancy timing, and ovarian cancer subtype.

	Adjusted relative risk (95% CI) per three additional months of pregnancy[1]	Adjusted relative risk (95% CI), additionally adjusted for maternal age at pregnancy and time since pregnancy[1]
Any pregnancy	0.97 (0.95-0.99)	0.95 (0.93-0.97)
Pregnancy number		
1st pregnancy	0.97 (0.93-1.01)	0.96 (0.92-1.00)
2nd pregnancy	0.99 (0.95-1.03)	0.98 (0.93-1.02)
3rd pregnancy	0.96 (0.93-0.99)	0.94 (0.91-0.98)
4+ pregnancy	0.97 (0.94-1.01)	0.95 (0.91-0.99)
	P=0.90	P=0.88
Pregnancy timing		
Latest	0.97 (0.95-1.00)	0.95 (0.93-0.98)
Non-latest	0.97 (0.94-0.99)	0.95 (0.92-0.98)
	P=0.84	P=0.89
Ovarian cancer subtype[2]		
Serous	0.96 (0.94-0.99)	0.94 (0.92-0.96)
Mucinous	0.99 (0.94-1.05)	0.97 (0.92-1.03)
Endometroid	0.97 (0.91-1.03)	0.95 (0.90-1.01)
Clear-cell	0.93 (0.84-1.02)	0.89 (0.81-0.99)
Other	1.01 (0.97-1.05)	1.00 (0.95-1.04)
	P=0.64	P=0.49

[1] Adjusted for age, calendar period, tubal ligation, endometriosis, marital status, educational attainment, urbanicity, and interaction between calendar period and age, educational attainment, marital status, and urbanicity.

[2] Analysis by ovarian cancer subtype based on follow-up from January 1, 1978 to December 31, 2018.

Appendix Table 6. Ovarian cancer risk per five years increased maternal age at pregnancy stratified by pregnancy number, pregnancy timing, and ovarian cancer subtype.

	Adjusted relative risk (95% CI) per five years increased maternal age at pregnancy[1]	Adjusted relative risk (95% CI), additionally adjusted for pregnancy duration and time since pregnancy[1]
Any pregnancy	0.97 (0.96-0.99)	0.99 (0.98-1.00)
Pregnancy number		
1st pregnancy	0.93 (0.90-0.96)	0.97 (0.93-1.00)
2nd pregnancy	1.01 (0.97-1.05)	1.05 (1.00-1.09)
3rd pregnancy	1.00 (0.95-1.05)	0.98 (0.93-1.03)
4+ pregnancy	0.97 (0.92-1.01)	0.97 (0.92-1.01)
	P=0.19	P=0.30
Pregnancy timing		
Latest	0.94 (0.92-0.97)	0.96 (0.93-0.99)
Non-latest	1.00 (0.98-1.02)	1.02 (0.99-1.04)
	P=0.05	P=0.10
Ovarian cancer subtype[2]		
Serous	0.99 (0.97-1.01)	1.01 (0.99-1.03)
Mucinous	0.93 (0.89-0.97)	0.94 (0.90-0.99)
Endometroid	1.00 (0.96-1.04)	1.03 (0.98-1.07)
Clear-cell	0.94 (0.88-1.00)	0.97 (0.89-1.05)
Other	0.95 (0.92-0.98)	0.94 (0.91-0.97)
	P=0.15	P=0.03

[1] Adjusted for age, calendar period, tubal ligation, endometriosis, marital status, educational attainment, urbanicity, and interaction between calendar period and age, educational attainment, marital status, and urbanicity.

[2] Analysis by ovarian cancer subtype based on follow-up from January 1, 1978 to December 31, 2018.

Appendix Table 7. Ovarian cancer risk per 10 additional years since pregnancy stratified by pregnancy number, pregnancy timing, and ovarian cancer subtype.

	Adjusted relative risk (95% CI) per 10 additional years since pregnancy[1]	Adjusted relative risk (95% CI), additionally adjusted for pregnancy duration and maternal age at pregnancy duration[1]
Any pregnancy	1.05 (1.04-1.06)	1.05 (1.04-1.07)
Pregnancy number		
1st pregnancy	1.10 (1.05-1.15)	1.08 (0.99-1.10)
2nd pregnancy	1.06 (1.01-1.10)	1.08 (1.03-1.14)
3rd pregnancy	1.00 (0.96-1.05)	1.01 (0.96-1.06)
4+ pregnancy	1.04 (1.00-1.08)	1.04 (1.00-1.09)
	P=0.15	P=0.40
Pregnancy timing		
Latest	1.09 (1.05-1.13)	1.07 (1.02-1.12)
Non-latest	1.04 (1.02-1.05)	1.05 (1.03-1.07)
	P=0.10	P=0.62
Ovarian cancer subtype[2]		
Serous	1.07 (1.04-1.09)	1.09 (1.06-1.11)
Mucinous	1.07 (1.02-1.12)	1.04 (0.99-1.10)
Endometroid	1.06 (1.01-1.11)	1.08 (1.03-1.14)
Clear-cell	1.11 (1.02-1.20)	1.10 (1.00-1.21)
Other	1.01 (0.98-1.04)	0.98 (0.95, 1.02)
	P=0.26	P=0.02

[1] Adjusted for age, calendar period, tubal ligation, endometriosis, marital status, educational attainment, urbanicity, and interaction between calendar period and age, educational attainment, marital status, and urbanicity.

[2] Analysis by ovarian cancer subtype based on follow-up from January 1, 1978 to December 31, 2018.

Appendix Table 8. Ovarian cancer risk, by pregnancy number and type, compared with one pregnancy less, excluding women with two or more induced abortions.

Pregnancy number and type	Adjusted relative risk (95% CI) [1]	Test for difference[2]
First pregnancy		
Induced abortion	0.83 (0.70-0.99)	
Childbirth	0.79 (0.72-0.86)	P=0.62
Second pregnancy		
Induced abortion	0.71 (0.59-0.85)	
Childbirth	0.74 (0.69-0.79)	P=0.71
Third pregnancy		
Induced abortion	0.89 (0.79-0.99)	
Childbirth	0.86 (0.80-0.92)	P=0.73
Fourth pregnancy		
Induced abortion	0.96 (0.82-1.14)	
Childbirth	0.95 (0.85-1.05)	P=0.86

[1] Adjusted for age, calendar period, tubal ligation, endometriosis, marital status, educational attainment, urbanicity, and interaction between calendar period and age, educational attainment, marital status, and urbanicity.

[2] P=0.97 for heterogeneity between induced abortions and childbirths overall, based on follow-up from April 2, 1968 to December 31, 2018.

Appendix Table 9. Ovarian cancer risk for women born from 1950, by pregnancy number and type, compared with one pregnancy less, adjusted for cumulative use of oral contraceptives (in years), with follow-up from 40 years of age.

Pregnancy number and type	Adjusted relative risk (95% CI)[1]	
	Without adjustment for cumulative use of oral contraceptives	With adjustment for cumulative use of oral contraceptives
First pregnancy		
Induced abortion	0.78 (0.63-0.96)	0.78 (0.63-0.96)
Childbirth	0.64 (0.54-0.75)	0.64 (0.54-0.75)
Second pregnancy		
Induced abortion	0.74 (0.60-0.92)	0.69 (0.55-0.87)
Childbirth	0.72 (0.63-0.81)	0.69 (0.61-0.79)
Third pregnancy		
Induced abortion	0.90 (0.75-1.08)	0.87 (0.72-1.05)
Childbirth	0.77 (0.67-0.88)	0.73 (0.63-0.84)
Fourth pregnancy		
Induced abortion	1.03 (0.82-1.30)	1.01 (0.78-1.30)
Childbirth	1.02 (0.85-1.23)	0.99 (0.80-1.22)

[1] Adjusted for age, calendar period, tubal ligation, endometriosis, marital status, educational attainment, urbanicity, cumulative years of oral contraception use, and interaction between calendar period and age, educational attainment, marital status, and urbanicity. Cumulative years of oral contraception use was imputed using information on filled prescriptions for oral contraceptives for all women born in 1978 (who were 16 years at the start of Danish prescription register in 1995). Cumulative use at 40 years of age was imputed by number of childbirths, number of abortions, and maternal age at first, second, third, and fourth pregnancy.

Appendix Table 10. Ovarian cancer risk, by pregnancy number and type, compared with one pregnancy less, with and without adjustment for hormone replacement therapy (HRT).

Pregnancy number and type	Adjusted relative risk (95% CI)[1]	
	Without adjustment for HRT	With adjustment for HRT
First pregnancy		
Induced abortion	0.88 (0.78-1.00)	0.88 (0.78-1.00)
Childbirth	0.81 (0.75-0.87)	0.81 (0.75-0.87)
Second pregnancy		
Induced abortion	0.76 (0.67-0.87)	0.76 (0.67-0.87)
Childbirth	0.73 (0.69-0.78)	0.73 (0.69-0.78)
Third pregnancy		
Induced abortion	0.96 (0.87-1.05)	0.96 (0.87-1.05)
Childbirth	0.85 (0.80-0.91)	0.85 (0.80-0.91)
Fourth pregnancy		
Induced abortion	1.01 (0.90-1.13)	1.01 (0.90-1.13)
Childbirth	0.95 (0.87-1.05)	0.95 (0.87-1.05)

[1] Adjusted for age, calendar period, tubal ligation, endometriosis, marital status, educational attainment, urbanicity, and interaction between calendar period and age, educational attainment, marital status, and urbanicity.

Appendix Table 11. Ovarian cancer risk, by pregnancy number and type, compared with one pregnancy less, with and without adjustment for clinical infertility.

Pregnancy number and type	Adjusted relative risk (95% CI)[1]	
	Without adjustment for infertility	With adjustment for infertility
First pregnancy		
Induced abortion	0.88 (0.78-1.00)	0.88 (0.78-1.00)
Childbirth	0.81 (0.75-0.87)	0.81 (0.75-0.88)
Second pregnancy		
Induced abortion	0.76 (0.67-0.87)	0.77 (0.68-0.88)
Childbirth	0.73 (0.69-0.78)	0.74 (0.69-0.79)
Third pregnancy		
Induced abortion	0.96 (0.87-1.05)	0.96 (0.88-1.06)
Childbirth	0.85 (0.80-0.91)	0.85 (0.80-0.91)
Fourth pregnancy		
Induced abortion	1.01 (0.90-1.13)	1.01 (0.90-1.14)
Childbirth	0.95 (0.87-1.05)	0.95 (0.87-1.05)

[1] Adjusted for age, calendar period, tubal ligation, endometriosis, marital status, educational attainment, urbanicity, and interaction between calendar period and age, educational attainment, marital status, and urbanicity. Information on clinical infertility was based on a hospital diagnosis of infertility registered from January 1, 1977.

Appendix Table 12. Ovarian cancer risk, by pregnancy number and type, compared with one pregnancy less, with and without censoring for hysterectomy.

Pregnancy number and type	Adjusted relative risk (95% CI)[1]	
	Without censoring for hysterectomy	With censoring for hysterectomy
First pregnancy		
Induced abortion	0.86 (0.74-1.00)	0.85 (0.73-1.00)
Childbirth	0.79 (0.72-0.87)	0.79 (0.72-0.86)
Second pregnancy		
Induced abortion	0.76 (0.66-0.87)	0.74 (0.64-0.86)
Childbirth	0.74 (0.70-0.79)	0.74 (0.69-0.79)
Third pregnancy		
Induced abortion	0.96 (0.88-1.05)	0.95 (0.86-1.04)
Childbirth	0.87 (0.81-0.92)	0.85 (0.80-0.91)
Fourth pregnancy		
Induced abortion	0.99 (0.89-1.12)	1.01 (0.89-1.14)
Childbirth	0.94 (0.86-1.03)	0.95 (0.86-1.05)

[1] Adjusted for age, calendar period, tubal ligation, endometriosis, marital status, educational attainment, urbanicity, and interaction between calendar period and age, educational attainment, marital status, and urbanicity.

Appendix Table 13. Ovarian cancer risk, by pregnancy number and type, compared with one pregnancy less, with follow-up from April 2, 1968 to December 31, 2018.

Pregnancy number and type	Adjusted relative risk (95% CI)[1]	Test for difference[2]
First pregnancy		
Induced abortion	0.85 (0.73-1.00)	
Childbirth	0.79 (0.72-0.86)	P=0.38
Second pregnancy		
Induced abortion	0.74 (0.64-0.86)	
Childbirth	0.74 (0.69-0.79)	P=0.96
Third pregnancy		
Induced abortion	0.95 (0.86-1.04)	
Childbirth	0.85 (0.80-0.91)	P=0.15
Fourth pregnancy		
Induced abortion	1.01 (0.89-1.14)	
Childbirth	0.95 (0.86-1.05)	P=0.59

[1] Adjusted for age, calendar period, tubal ligation, endometriosis, marital status, educational attainment, urbanicity, and interaction between calendar period and age, educational attainment, marital status, and urbanicity.

[2] P=0.52 for heterogeneity between induced abortions and childbirths overall.

Appendix Table 14. Ovarian cancer risk, by pregnancy number and type, compared with one pregnancy less, by adjustment for different socioeconomic factors individually.

Pregnancy number and type	Adjusted relative risk (95% CI)[1] No adjustment for socio-economic factors	Adjustment for educational achievement	Adjustment for marital status	Adjustment for urbanicity
First pregnancy				
Induced abortion	0.90 (0.79-1.01)	0.88 (0.78-0.99)	0.85 (0.73-0.99)	0.90 (0.79-1.01)
Childbirth	0.84 (0.78-0.91)	0.82 (0.76-0.89)	0.80 (0.73-0.87)	0.83 (0.77-0.90)
Second pregnancy				
Induced abortion	0.76 (0.67-0.86)	0.76 (0.67-0.87)	0.74 (0.64-0.85)	0.76 (0.67-0.87)
Childbirth	0.74 (0.69-0.79)	0.74 (0.69-0.79)	0.74 (0.70-0.79)	0.73 (0.69-0.78)
Third pregnancy				
Induced abortion	0.96 (0.87-1.05)	0.96 (0.87-1.05)	0.95 (0.86-1.04)	0.96 (0.87-1.05)
Childbirth	0.86 (0.80-0.91)	0.86 (0.80-0.91)	0.86 (0.80-0.92)	0.85 (0.80-0.91)
Fourth pregnancy				
Induced abortion	1.01 (0.89-1.13)	1.01 (0.89-1.13)	1.01 (0.89-1.14)	1.01 (0.90-1.13)
Childbirth	0.96 (0.87-1.05)	0.95 (0.87-1.05)	0.96 (0.87-1.06)	0.95 (0.86-1.05)

[1] All analyses adjusted for age, calendar period, tubal ligation, endometriosis, and interaction between calendar period and age.

Appendix Table 15. Ovarian cancer risk by number of pregnancies, including five or more, with no pregnancies and previous pregnancy as reference, respectively.

Pregnancy number	Adjusted relative risk (95% CI) with nulligravid as reference*	Adjusted relative risk (95% CI) with previous pregnancy as reference*
Nulligravid	1 (ref.)	-
1st	0.79 (0.72-0.86)	0.79 (0.72-0.86)
2nd	0.58 (0.53-0.63)	0.74 (0.69-0.79)
3rd	0.51 (0.47-0.56)	0.88 (0.83-0.93)
4th	0.48 (0.43-0.54)	0.94 (0.86-1.04)
5th or more	0.52 (0.45-0.60)	1.08 (0.94-1.25)

* Adjusted for age, calendar period, tubal ligation, endometriosis, marital status, educational attainment, urbanicity, and interaction between calendar period and age, educational attainment, marital status, and urbanicity.

Appendix Table 16. Crude ovarian cancer risk by number of pregnancies, with no pregnancies and previous pregnancy as reference, respectively, adjusted only for age.

Pregnancy number	Age-adjusted relative risk (95% CI) with nulligravid as reference*	Age-adjusted relative risk (95% CI) with previous pregnancy as reference*,†
Nulligravid	1 (ref.)	-
1st	0.86 (0.80-0.93)	0.86 (0.80-0.93)
2nd	0.63 (0.59-0.68)	0.74 (0.69-0.78)
3rd	0.55 (0.51-0.60)	0.88 (0.82-0.93)
4th or more	0.52 (0.48-0.57)	0.94 (0.87-1.02)

* Adjusted for age.

† P<0.01 for heterogeneity.

Appendix Table 17. Crude ovarian cancer risk by pregnancy number and type, compared with one pregnancy less, including information on spontaneous abortions, adjusted only for age.

Pregnancy number and type*	Age-adjusted relative risk (95% CI) by pregnancy type, compared with one pregnancy less†	Test for difference
First pregnancy		
Induced abortion	0.72 (0.64-0.81)	
Spontaneous abortion	0.72 (0.59-0.88)	P = 0.04
Childbirth	0.87 (0.81-0.94)	
Second pregnancy		
Induced abortion	0.68 (0.60-0.77)	
Spontaneous abortion	0.73 (0.61-0.87)	P = 0.48
Childbirth	0.73 (0.69-0.78)	
Third pregnancy		
Induced abortion	0.92 (0.84-1.01)	
Spontaneous abortion	0.82 (0.67-1.01)	P = 0.51
Childbirth	0.87 (0.82-0.93)	
Fourth pregnancy		
Induced abortion	0.98 (0.87-1.10)	
Spontaneous abortion	0.86 (0.65-1.13)	P = 0.87
Childbirth	0.95 (0.86-1.05)	
Test for overall difference‡		P = 0.09

* Median duration of registered spontaneous abortions was previously estimated to 11 gestational weeks[27], while median duration of induced abortions and childbirths was eight and 40 gestational weeks, respectively.

† Adjusted for age. Information on spontaneous abortions was available for 42 years from January 1, 1977, to December 31, 2018, with 240,303 spontaneous abortions registered in this time period.

‡ Test for overall difference between spontaneous abortions, induced abortions, and childbirths, based on follow-up from January 1, 1977 to December 31, 2018.

Appendix Table 18. Relative risk of ovarian cancer by an additional third pregnancy among women with two pregnancies, with either less than two years between pregnancies (high fecundity group) or more than two years between pregnancies (remaining cohort), respectively.

	Adjusted relative risk (95% CI) in high fecundity group[1]	Adjusted relative risk (95% CI) in remaining cohort[1]
Two pregnancies	1 (ref.)	1 (ref.)
Third pregnancy	0.83 (0.75-0.92)	0.90 (0.84-0.97)

[1] Adjusted for age, calendar period, tubal ligation, endometriosis, marital status, educational attainment, urbanicity, and interaction between calendar period and age, educational attainment, marital status, and urbanicity.

Appendix Table 19. STROBE Statement—Checklist of items that should be included in reports of cohort studies.

	Item No	Recommendation	Description in manuscript
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	Reported in abstract
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	Reported in abstract
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	Reported in introduction
Objectives	3	State specific objectives, including any prespecified hypotheses	Reported in introduction
Methods			
Study design	4	Present key elements of study design early in the paper	Reported in introduction and methods
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	Reported in methods
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up	Reported in methods
		(*b*) For matched studies, give matching criteria and number of exposed and unexposed	Not applicable
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	Reported in methods
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	Reported in methods
Bias	9	Describe any efforts to address potential sources of bias	Reported in methods
Study size	10	Explain how the study size was arrived at	Reported in methods
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	Reported in methods (statistical analysis)

Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	Reported in statistical analysis
		(*b*) Describe any methods used to examine subgroups and interactions	Reported in statistical analysis
		(*c*) Explain how missing data were addressed	Reported in methods
		(*d*) If applicable, explain how loss to follow-up was addressed	Reported in methods
		(*e*) Describe any sensitivity analyses	Reported in statistical analysis, results, discussion, and supplement
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	Reported in results and Table 1
		(b) Give reasons for non-participation at each stage	Not applicable (complete population cohort study)
		(c) Consider use of a flow diagram	Not applicable
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	Reported in results and Table 1
		(b) Indicate number of participants with missing data for each variable of interest	Reported in Table 1
		(c) Summarise follow-up time (eg, average and total amount)	Reported in results
Outcome data	15*	Report numbers of outcome events or summary measures over time	Reported in results and Table 1
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	Reported in Methods, Table 2, Table 3, and supplement
		(*b*) Report category boundaries when continuous variables were categorized	Reported in Table 1
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	Reported in results and supplement

Discussion			
Key results	18	Summarise key results with reference to study objectives	Reported in discussion
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	Reported in discussion
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	Reported in discussion
Generalisability	21	Discuss the generalisability (external validity) of the study results	Reported in discussion
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	Reported in funding section.

*Give information separately for exposed and unexposed groups.